

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark  
Office  
(Box PCT)  
Crystal Plaza 2  
Washington, DC 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 01 December 1998 (01.12.98)	
<b>International application No.</b> PCT/CA98/00314	<b>Applicant's or agent's file reference</b> 6310-16 LAB
<b>International filing date (day/month/year)</b> 06 April 1998 (06.04.98)	<b>Priority date (day/month/year)</b> 15 April 1997 (15.04.97)
<b>Applicant</b> DE LASA, Hugo et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

04 November 1998 (04.11.98)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b> G. Bähr Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

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REC'D 22 JUL 1999

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 6310-16 LAB	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/CA98/00314	International filing date (day/month/year) 06/04/1998	Priority date (day/month/year) 15/04/1997
International Patent Classification (IPC) or national classification and IPC B01D53/86		
Applicant THE UNIVERSITY OF WESTERN ONTARIO et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  04/11/1998	Date of completion of this report  20.07.99
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer  Tragoustis, M  Telephone No. (+49-89) 2399 8623 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/CA98/00314

**I. Basis of the report**

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

**Description, pages:**

1-60 as originally filed

**Claims, No.:**

1-25 as originally filed

**Drawings, sheets:**

1/30-30/30 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/CA98/00314

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-25
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-25
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-25
	No:	Claims	

### 2. Citations and explanations

**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/CA98/00314

1. From the description (see pages 3-5) it becomes clear that the photoreactor of the present application comprises a closed tubing system including (i) a venturi means for constraining the gas stream and increasing its velocity while simultaneously creating a suction effect, (ii) a photocatalyst positioned downstream of the venturi means transversely with respect to the gas stream and (iii) an UV light source for illuminating the photocatalyst.

A main independent claim directed to a photoreactor and including the above essential features expressed in a clear manner is regarded as meeting the requirements of Art. 33 PCT. Present claim 21 can be used as a basis for such a clearly drafted independent claim 1.

The above remarks apply in an analogous manner to the drafting of an independent method claim.

The documents cited in the Search Report fail to disclose or fairly suggest such a photoreactor. None of them points towards employing a venturi means and the beneficial effects of the suction created within the venturi means.

2. Present claim 1 is unclearly drafted (Art. 6 PCT) since it does not include the above essential features expressed in a clear and exact manner. More specifically the wording " means for constraining ... a suction effect" is too general and vague and not in accordance with the description where only a venturi means causing a suction effect is described.

The wording "means for irradiating ...stream" is also vague since it does not express clearly that the organic air borne pollutants are destructed by means of the photocatalyst which is irradiated by UV light.

3. Statements in the description (see page 5, lines 27-30) not in accordance with the wording of the claims cause unclarity (Art. 6 PCT).

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>6310-16 LAB</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/CA 98/ 00314</b>	International filing date (day/month/year) <b>06/04/1998</b>	(Earliest) Priority Date (day/month/year) <b>15/04/1997</b>
Applicant <b>THE UNIVERSITY OF WESTERN ONTARIO et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).
2. ☐ Unity of invention is lacking (see Box II).
3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing
  - ☐ filed with the international application.
  - ☐ furnished by the applicant separately from the international application,
    - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
  - ☐ Transcribed by this Authority
4. With regard to the **title**,
  - ☒ the text is approved as submitted by the applicant
  - ☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract**,
  - ☒ the text is approved as submitted by the applicant
  - ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.
6. The figure of the **drawings** to be published with the abstract is:  
Figure No. 1
  - ☒ as suggested by the applicant.
  - ☐ because the applicant failed to suggest a figure.
  - ☐ because this figure better characterizes the invention.
  - ☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 98/00314

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B01D53/86 B01D53/88 A62D3/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B01D A62D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 96 37281 A (MINNESOTA MINING &amp; MFG) 28 November 1996</p> <p>see page 3, line 9 - line 17  see page 8, line 16 - page 9, line 2  see page 4, line 8 - page 6, line 27  see page 10, line 19 - page 12, line 2  see page 12, line 10 - page 13, line 13;  claims 1-9; figure 1</p>	<p>1-6, 8,  16, 18,  19, 22, 24</p>
A	<p>DE 40 23 995 A (RUETGERSWERKE AG) 30 January 1992</p> <p>see the whole document</p>	<p>1, 3-6, 9,  14-16,  18, 19, 24</p>

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## ° Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

22 June 1998

Date of mailing of the international search report

06/07/1998

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 98/00314

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 40 12 119 A (KAT TEC GES FUER KATALYSATORTE) 17 October 1991 see column 2, line 48 - column 4, line 42; figures 1,2 ---	10-13, 21,23,24
A	EP 0 476 724 A (HITACHI LTD) 25 March 1992 see the whole document ---	1-24
A	PATENT ABSTRACTS OF JAPAN vol. 014, no. 314 (C-0737), 5 July 1990 & JP 02 107338 A (HITACHI LTD), 19 April 1990, see abstract -----	1,4-7,9



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 98/00314

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9637281 A	28-11-1996	CA 2150320 A AU 5675096 A EP 0828551 A	27-11-1996 11-12-1996 18-03-1998
DE 4023995 A	30-01-1992	NONE	
DE 4012119 A	17-10-1991	NONE	
EP 0476724 A	25-03-1992	JP 1189321 A JP 1189322 A JP 2574840 B CN 1035438 A, B EP 0325133 A US 4954465 A US 4955208 A	28-07-1989 28-07-1989 22-01-1997 13-09-1989 26-07-1989 04-09-1990 11-09-1990